PIVOT TABLE 101

EXCEL MAVEN

WHY PIVOT TABLES?

	A	B	C	D
1	State	Year	Total Population	Student Population
2	New Mexico	2002	1,903,289	310,117
3	Nebraska	2003	1,826,341	313,968
4	Maryland	2004	5,884,563	359,210
5	California	2003	37,253,956	8,965,848
6	Montana	2002	926,865	163,067
7	D.C.	2004	917,092	183,811
8	Alaska	2002	655,435	153,920
9	Minnesota	2001	4,919,479	1,195,975
10	Louisiana	2001	4,468,976	626,279
11	Montana	2001	902,195	208,952
12	New Mexico	2004	2,085,538	631,320
13	West Virginia	2004	1,855,413	244,566
14	Louisiana	2004	4,601,893	326,680
15	Arizona	2003	6,329,013	1,837,525
16	Maryland	2001	5,296,486	1,399,498
17	Tennessee	2002	5,900,962	595,648
18	Texas	2002	23,764,231	5,246,483
19	Rhode Island	2003	1,052,567	173,937
20	Utah	2001	2,233,169	388,385
21	Wisconsin	2001	5,363,675	1,415,261
22	Kansas	2004	2,885,905	872,769
23	D.C.	2001	783,600	166,161
24	California	2002	35,893,799	3,598,863
25	Ohio	2003	11,536,502	3,361,193
26	Texas	2003	25,145,561	7,561,350
27	Alabama	2002	4,530,182	1,273,375
28	Utah	2002	2,389,039	460,374
29	Virginia	2003	8,001,024	1,445,224

Looking at a raw data set like the one here, how would you answer the following?

1. *Which state had the highest population in 2002?*
2. *In which year was overall US population the highest?*
3. *Which states saw a decline in student population rate between 2003 and 2004?*

What if you don't even ***know*** what you're looking for?

EXCEL MAVEN

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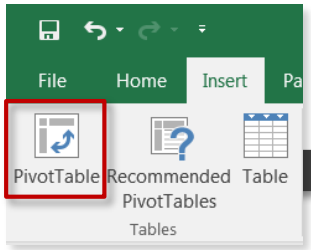
28	Utah	2002	2,389,039	460,374
29	Virginia	2003	8,001,024	1,445,224

PivotTables allow you to easily **organize, filter, summarize,** and **analyze** raw data

"*Analyzing data without a Pivot is like hammering a nail with a noodle*"

-Albert Einstein*



	A	B	C	D	E
1	State	Year	Total Pop	% of State Pop	Student Population %
2	**Alabama**		**18,579,040**	**100.00%**	**19.15%**
3		2001	4,447,100	23.94%	21.33%
4		2002	4,530,182	24.38%	28.11%
5		2003	4,779,735	25.73%	10.39%
6		2004	4,822,023	25.95%	17.42%
7	**Alaska**		**2,724,047**	**100.00%**	**12.99%**
8		2001	626,932	23.01%	10.72%
9		2002	655,435	24.06%	23.48%
10		2003	710,231	26.07%	7.75%
11		2004	731,449	26.85%	10.63%
12	**Arizona**		**23,756,734**	**100.00%**	**17.32%**
13		2001	5,130,632	21.60%	27.22%
14		2002	5,743,834	24.18%	6.10%
15		2003	6,329,013	26.64%	29.03%
16		2004	6,553,255	27.58%	8.09%

*Quote not confirmed

EXCEL MAVEN

KEY BENEFITS

1. **POWERFUL**
   - *Uncover insights and answer key questions about your data*
2. **BEAUTIFUL**
   - *Apply custom styles and conditional formatting rules to bring your Pivots to life*
3. **FAST**
   - *Create custom views, filters, and calculated fields on the fly*
4. **ACCURATE**
   - *Automate calculations to minimize human error*
5. **FLEXIBLE**
   - *Manipulate table layouts and create dynamic views in seconds*

EXCEL MAVEN

DATA STRUCTURE

GOOD!

	A	B	C	D	E	F	G	H	I	J
1	Satisfaction	Airline Status	Age	Age Range	Gender	Flight Date	Destination City	Destination State	Type of Travel	Class
2	5	Blue	31	30-39	Male	3/18/2014	Dallas/Fort Worth, TX	Texas	Business travel	Business
3	4	Blue	56	50-59	Male	1/11/2014	Dallas/Fort Worth, TX	Texas	Business travel	Business
4	3	Blue	21	20-29	Female	1/25/2014	Dallas/Fort Worth, TX	Texas	Personal Travel	Business
5	4	Blue	43	40-49	Male	2/20/2014	Dallas/Fort Worth, TX	Texas	Business travel	Eco
6	5	Silver	49	40-49	Male	2/25/2014	Dallas/Fort Worth, TX	Texas	Business travel	Eco
7	5	Gold	49	40-49	Female	1/16/2014	Dallas/Fort Worth, TX	Texas	Business travel	Eco
8	3	Gold	35	30-39	Male	3/6/2014	Dallas/Fort Worth, TX	Texas	Business travel	Eco
9	4	Silver	33	30-39	Male	2/5/2014	Dallas/Fort Worth, TX	Texas	Business travel	Eco
10	4	Blue	44	40-49	Female	1/21/2014	Dallas/Fort Worth, TX	Texas	Business travel	Eco
11	4	Blue	51	50-59	Female	1/19/2014	Dallas/Fort Worth, TX	Texas	Business travel	Eco
12	4	Blue	28	20-29	Male	3/19/2014	Dallas/Fort Worth, TX	Texas	Business travel	Eco
13	2	Blue	39	30-39	Female	2/4/2014	Dallas/Fort Worth, TX	Texas	Business travel	Eco
14	5	Platinum	46	40-49	Female	1/15/2014	Dallas/Fort Worth, TX	Texas	Business travel	Eco
15	3	Silver	26	20-29	Female	2/5/2014	Dallas/Fort Worth, TX	Texas	Business travel	Eco
16	3	Blue	52	50-59	Female	2/17/2014	Dallas/Fort Worth, TX	Texas	Mileage tickets	Eco
17	3	Blue	46	40-49	Male	1/9/2014	Dallas/Fort Worth, TX	Texas	Mileage tickets	Eco
18	3	Silver	62	60-69	Female	1/4/2014	Dallas/Fort Worth, TX	Texas	Personal Travel	Eco
19	2	Blue	24	20-29	Female	2/9/2014	Dallas/Fort Worth, TX	Texas	Personal Travel	Eco
20	1	Blue	75	70-79	Female	3/8/2014	Dallas/Fort Worth, TX	Texas	Personal Travel	Eco
21	3	Blue	19	0-19	Female	2/16/2014	Dallas/Fort Worth, TX	Texas	Personal Travel	Eco
22	3	Blue	38	30-39	Female	1/19/2014	Dallas/Fort Worth, TX	Texas	Personal Travel	Eco
23	2	Blue	62	60-69	Male	1/24/2014	Dallas/Fort Worth, TX	Texas	Personal Travel	Eco
24	3	Blue	16	0-19	Male	1/15/2014	Dallas/Fort Worth, TX	Texas	Personal Travel	Eco
25	1	Blue	67	60-69	Female	3/6/2014	Dallas/Fort Worth, TX	Texas	Personal Travel	Eco
26	2	Blue	47	40-49	Female	3/29/2014	Dallas/Fort Worth, TX	Texas	Personal Travel	Eco
27	3	Blue	62	60-69	Female	1/21/2014	Dallas/Fort Worth, TX	Texas	Personal Travel	Eco

- *Rectangular (variables as columns, observations as rows)*
- *No extra formatting*
- *Contains only dimensions & measures*
- *Clear column headers*
- *No extra headers, footers, sub-totals or calculated fields*

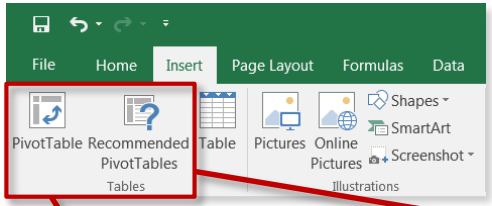
BAD!

	A	B	D	E	F	G	H	I
1	MARKETING DATA							
2		Period1	Period2	Period3	Period4	Period5	Period6	Period7	Period8
3	*Impressions*	1,286,982	2,873,987	1,266,721	1,236,237	2,122,113	2,145,532	2,516,782	2,981,727
4	*Clicks*	627	374	827	263	912	662	723	1283
5	*CTR*	0.049%	0.013%	0.065%	0.021%	0.043%	0.031%	0.029%	0.043%
6	*Column3*	79	67	0	88	66	79	95	85
7	*Column4*	20	6	20	15	12	15	18	17
8	*CVR*	***25%***	***9%***	***#DIV/0!***	***17%***	***18%***	***19%***	***19%***	***20%***
9									
10			Monthly Costs						
11			*Jan*	$395					
12			*Feb*	$350					
13			*Mar*	$206					
14			*Apr*	$214					
15			*May*	$385					
16			*Jun*	$301					
17			*Jul*	$263					

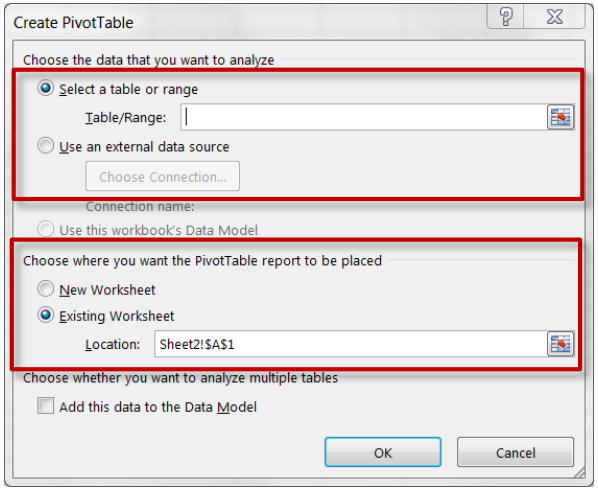
- *Transposed (variables as rows, observations as columns)*
- *Unnecessary formatting*
- *Contains calculated fields*
- *Confusing column header names*
- *Extra header rows*

EXCEL MAVEN

INSERTING A PIVOT TABLE



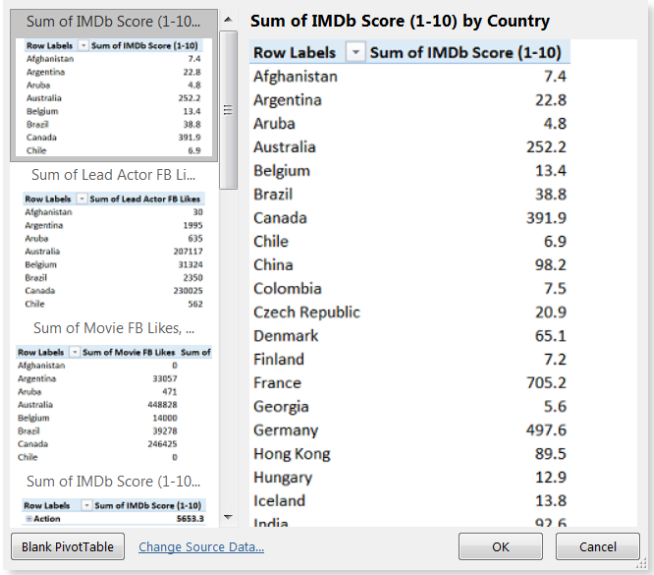
From the "Insert" menu, select PivotTable to create a blank Pivot, or use the Recommended PivotTables option to browse pre-populated starting points



What data are you analyzing?

Where will the PivotTable live?

(Insert → PivotTable)



(Insert → Recommended PivotTables)

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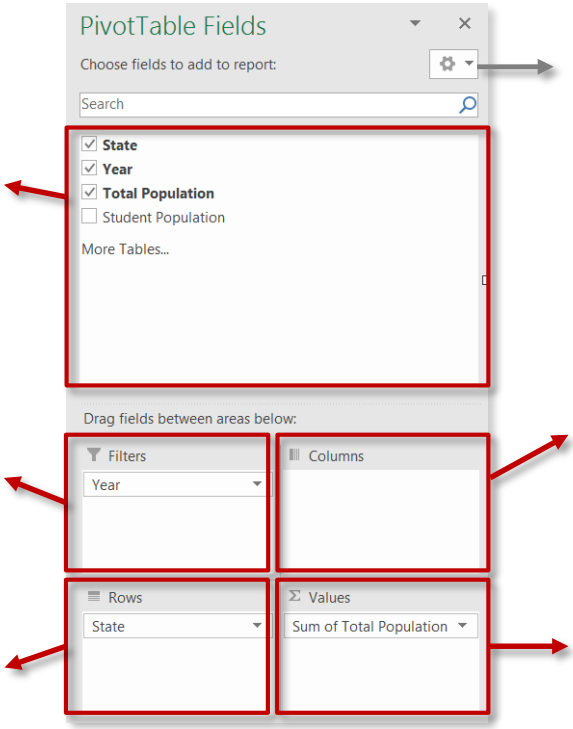
THE FIELD LIST

The **Field List** shows all the variables in your dataset, and which ones are currently included in the Pivot

If there are fields that you want to use to filter the whole data set, drag them to the **Filters** box

Variables included in the **Rows** field will appear as individual *rows* within the Pivot



Layout options allow you to adjust the look and feel of the field list

Variables included in the **Columns** field appear as individual *columns* within the Pivot

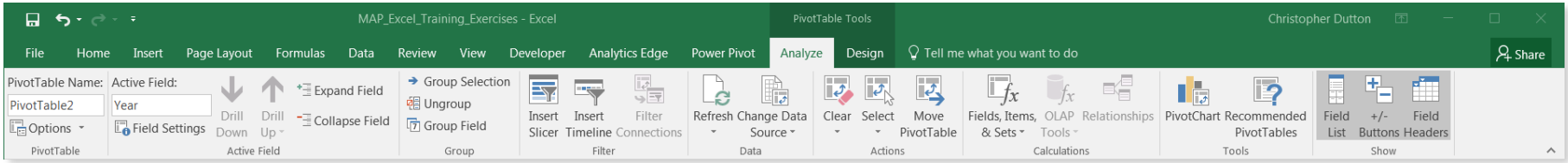
Numerical variables are almost always included in the **Values** field

(These are the quantitative measures that you care about: sales, revenue, clicks, etc.)

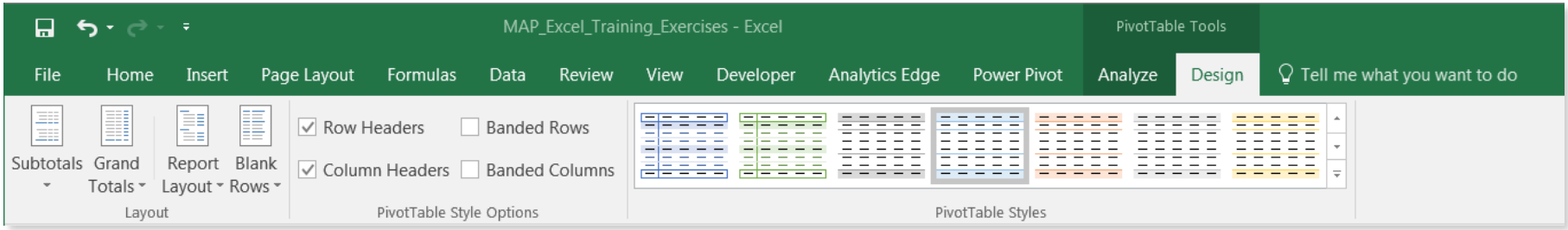
EXCEL MAVEN

ANALYZE & DESIGN OPTIONS

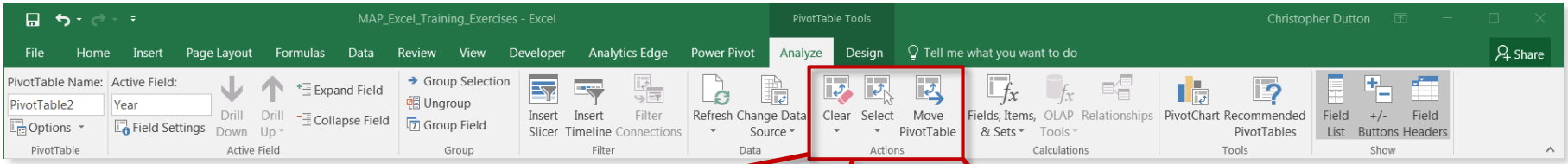
The **“Analyze”** Tab:

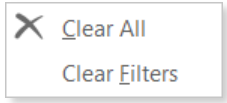


The **“Design”** Tab:

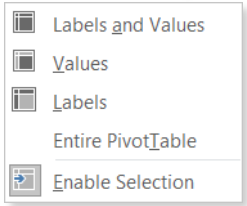


SELECTING, CLEARING & MOVING PIVOTS

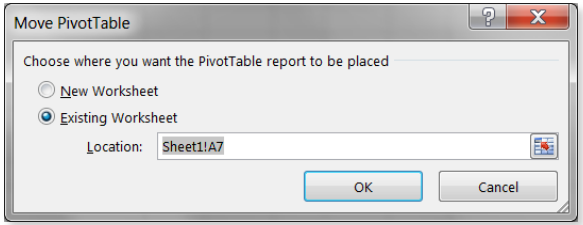




Clear options allow you to clear all fields and values from a table, or just any filters that have been applied



Select options (allow you to select entire sections of the PivotTable (or the entire table itself)



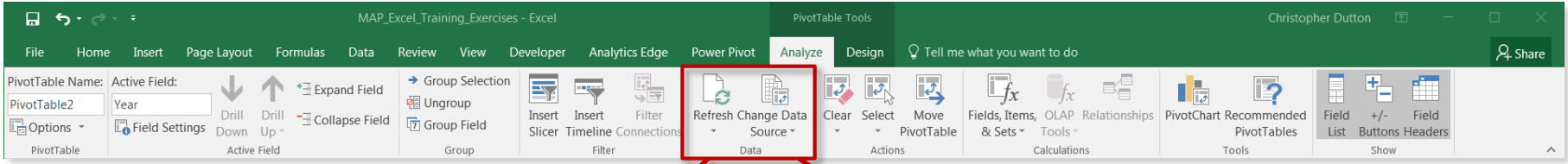
Move options allow you to relocate an existing PivotTable to a new worksheet or a new location within the existing one

PRO TIP:

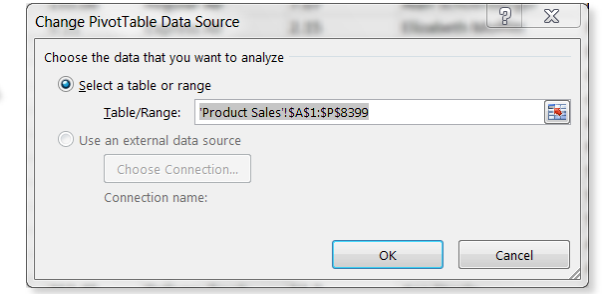
Select → Entire PivotTable, then copy and paste to duplicate an entire Pivot

EXCEL MAVEN

REFRESHING & UPDATING PIVOTS



Refresh updates the PivotTable based on changes made *within* the defined source data range or table



PRO TIP:

Format your source data as a table to dynamically adjust as new columns or rows are added, or use a column-only range reference (i.e. $A:$G)

Change Data Source allows you refresh the Pivot to reflect changes *outside of* the defined source range or table (i.e. new columns or rows)

EXCEL MAVEN

HOW DO PIVOTS *ACTUALLY* WORK?

	A	B
1	Age	(All)
2		
3	**State**	**Average of Total Population**
4	Alabama	719
5	Alaska	103
6	Arizona	973
7	Arkansas	440
8	California	5,672
9	Colorado	763
10	Connecticut	545
11	Delaware	139

STEP 1: Detect/evaluate coordinates

- *State = **Arizona***
- *Measure = **Total Population***
- *Filter = **All ages***

Excel isolates relevant source data

	A	B	C	D
1	**State**	**Age**	**Total Population**	**Total Citizen I**
2	Alabama	18 to 24	439	428
3	Alabama	25 to 34	576	535
4	Alabama	35 to 44	615	582
5	Alabama	45 to 64	1297	1275
6	Alabama	65+	667	660
7	Alaska	18 to 24	63	61
8	Alaska	25 to 34	109	103
9	Alaska	35 to 44	86	80
10	Alaska	45 to 64	186	182
11	Alaska	65+	72	69
12	Arizona	18 to 24	586	545
13	Arizona	25 to 34	859	709
14	Arizona	35 to 44	870	713
15	Arizona	45 to 64	1656	1502
16	Arizona	65+	892	846
17	Arkansas	18 to 24	288	281
18	Arkansas	25 to 34	362	336

STEP 2: Apply arithmetic

- *Summarize Values By: **AVERAGE***
- *(vs. SUM, COUNT, MAX, MIN, etc.)*

STEP 3: Display result

- *(586+859+870+1656+892)/5 = **973***

	A	B
1	Age	(All)
2		
3	**State**	**Average of Total Population**
4	Alabama	719
5	Alaska	103
6	Arizona	973
7	Arkansas	440

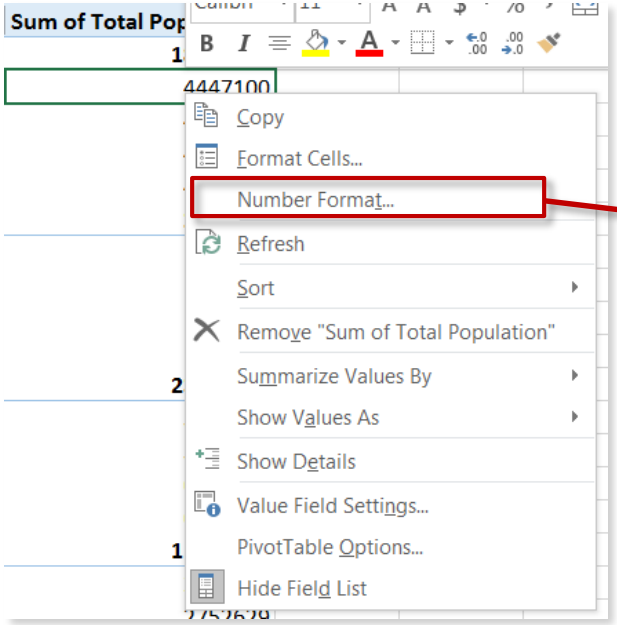
***NOTE:** You can **double-click** any specific value in a Pivot to generate a new tab showing the exact source data used to calculate it*

EXCEL MAVEN

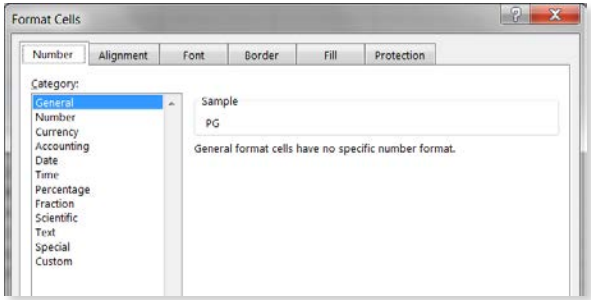
PIVOT FORMATTING

EXCEL MAVEN

NUMBER FORMATTING



Right-click a column header or any individual value within a field to change the number format (*number, currency, percentage, date, etc.*)

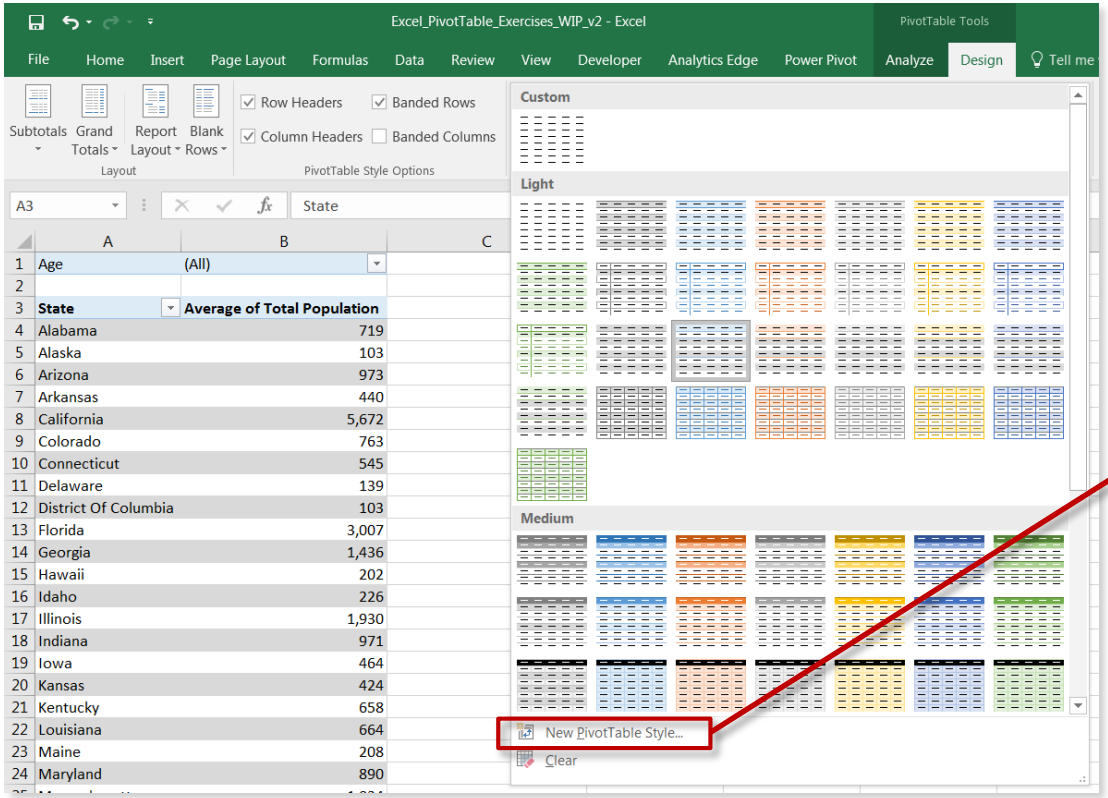


PRO TIP:

Right click, select PivotTable Options, and select the "Layout & Format" tab to customize how you want to display blank or error values

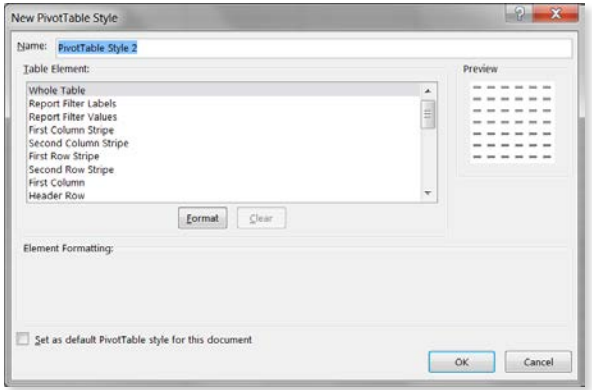
EXCEL MAVEN

TABLE STYLES



	A	B	C
1	Age	(All)	
2			
3	**State**	**Average of Total Population**	
4	Alabama	719	
5	Alaska	103	
6	Arizona	973	
7	Arkansas	440	
8	California	5,672	
9	Colorado	763	
10	Connecticut	545	
11	Delaware	139	
12	District Of Columbia	103	
13	Florida	3,007	
14	Georgia	1,436	
15	Hawaii	202	
16	Idaho	226	
17	Illinois	1,930	
18	Indiana	971	
19	Iowa	464	
20	Kansas	424	
21	Kentucky	658	
22	Louisiana	664	
23	Maine	208	
24	Maryland	890	

Select from a range of styles (*right-click to make default*)**, or customize your own:**



EXCEL MAVEN

TABLE LAYOUTS: COMPACT VS. OUTLINE

Compact Form (*default*):

	A	B
1	Order Priority	(All)
2	Region	(All)
3		
4	**Row Labels**	**Sum of Order Quantity**
5	**Furniture**	**4,563**
6	**Bookcases**	**1,347**
7	O'Sullivan 3-Shelf Heavy-Duty Bookcases	500
8	Bush Mission Pointe Library	442
9	O'Sullivan Elevations Bookcase, Cherry Finish	405
10	**Chairs & Chairmats**	**1,674**
11	Global High-Back Leather Tilter, Burgundy	666
12	Global Troy™ Executive Leather Low-Back Tilter	550
13	Office Star - Mid Back Dual function Ergonomic High Back Chair	458
14	**Tables**	**1,542**
15	Bevis 36 x 72 Conference Tables	619
16	BoxOffice By Design Rectangular and Half-Moon Meeting Room	516
17	Bretford CR8500 Series Meeting Room Furniture	407
18	**Office Supplies**	**4,137**
19	**Binders and Binder Accessories**	**1,400**
20	Wilson Jones Hanging View Binder, White, 1"	585
21	Storex DuraTech Recycled Plastic Frosted Binders	412
22	Avery Flip-Chart Easel Binder, Black	403
23	**Paper**	**1,379**
24	Computer Printout Paper with Letter-Trim Perforations	502

- *Nested fields/dimensions condensed into one column, with one filter option*

VS.

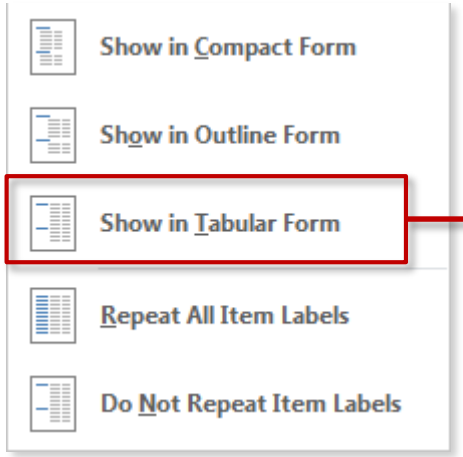
Outline Form (*recommended*):

	A	B	C	D
1	Order Priority	(All)		
2	Region	(All)		
3				
4	**Product Category**	**Product Sub-Category**	**Product Name**	**Sum of Order Quantity**
5	**Furniture**			**4,563**
6		**Bookcases**		**1,347**
7			O'Sullivan 3-Shelf Heavy-Duty Bookcases	500
8			Bush Mission Pointe Library	442
9			O'Sullivan Elevations Bookcase, Cherry Finish	405
10		**Chairs & Chairmats**		**1,674**
11			Global High-Back Leather Tilter, Burgundy	666
12			Global Troy™ Executive Leather Low-Back Tilter	550
13			Office Star - Mid Back Dual function Ergonomic High	458
14		**Tables**		**1,542**
15			Bevis 36 x 72 Conference Tables	619
16			BoxOffice By Design Rectangular and Half-Moon Me	516
17			Bretford CR8500 Series Meeting Room Furniture	407
18	**Office Supplies**			**4,137**
19		**Binders and Binder Accessories**		**1,400**
20			Wilson Jones Hanging View Binder, White, 1"	585
21			Storex DuraTech Recycled Plastic Frosted Binders	412
22			Avery Flip-Chart Easel Binder, Black	403
23		**Paper**		**1,379**
24			Computer Printout Paper with Letter-Trim Perforatic	502
25			Xerox 210	473

- *Each field/dimension broken out into its own column, with separate column headers and filter options*
- *Allows you to apply custom filters to each field (i.e. label filters on the **Product Category** field and value filters on the **Product Sub-Category** field)*

EXCEL MAVEN

TABLE LAYOUTS: TABULAR FORM



Tabular Form (*non-repeating*):

	Player	(All)		
3				
4	**Team**	**Position**	**Sum of Salary**	**Sum of Games**
5	**Anaheim Angels**	Catcher	$2,082,500	341
6		First Baseman	$5,250,000	225
7		Outfielder	$23,725,000	623
8		Pitcher	$37,304,167	1307
9		Second Baseman	$2,270,000	109
10		Shortstop	$1,150,000	146
11		Third Baseman	$7,250,000	83
12	**Baltimore Orioles**	Catcher	$3,830,000	282
13		First Baseman	$8,375,000	396
14		Outfielder	$22,975,000	591
15		Pitcher	$29,142,500	1478
16		Shortstop	$2,850,000	398
17		Third Baseman	$6,705,000	197
18	**Boston Red Sox**	Catcher	$5,505,000	246
19		First Baseman	$3,250,000	259

Tabular Form (*repeating*):

	Player	(All)		
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4	**Team**	**Position**	**Sum of Salary**	**Sum of Games**
5	**Anaheim Angels**	Catcher	$2,082,500	341
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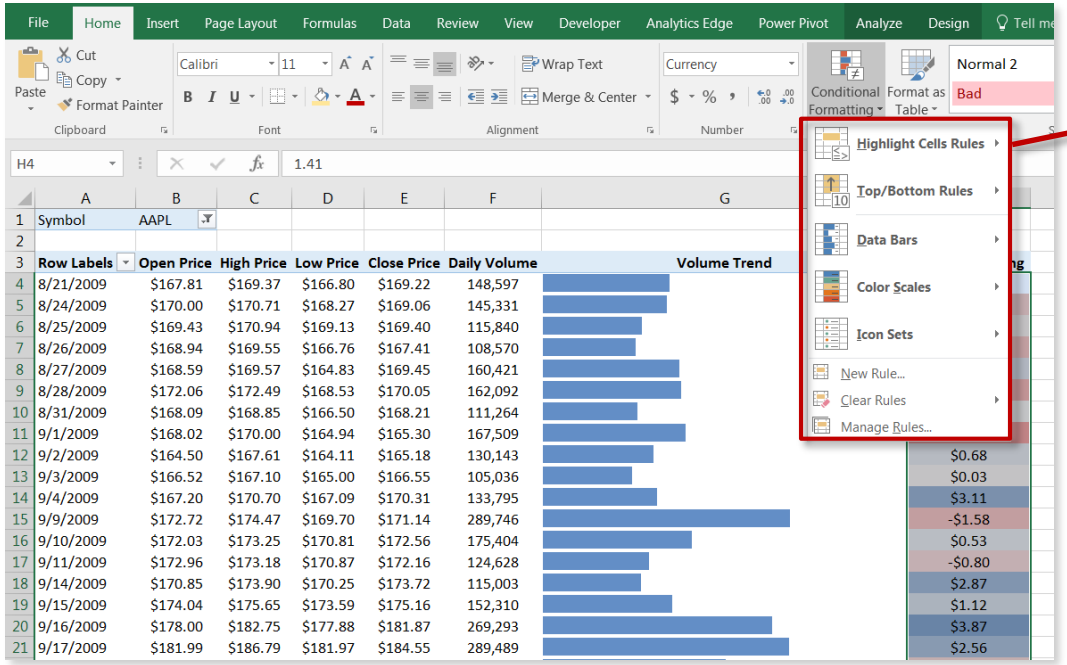
18	**Boston Red Sox**	Catcher	$5,505,000	246
19	**Boston Red Sox**	First Baseman	$3,250,000	259
20	**Boston Red Sox**	Outfielder	$33,500,000	530
21	**Boston Red Sox**	Pitcher	$40,109,000	1355

PRO TIP:

Use Outline Form when you are manipulating data within a Pivot, and switch to Tabular form with repeating labels (and no grand totals or subtotals) if you want to create a new raw dataset

EXCEL MAVEN

CONDITIONAL FORMATTING



Conditional Formatting rules can be applied to PivotTables just like normal data ranges

(Home → Conditional Formatting)

Options include:

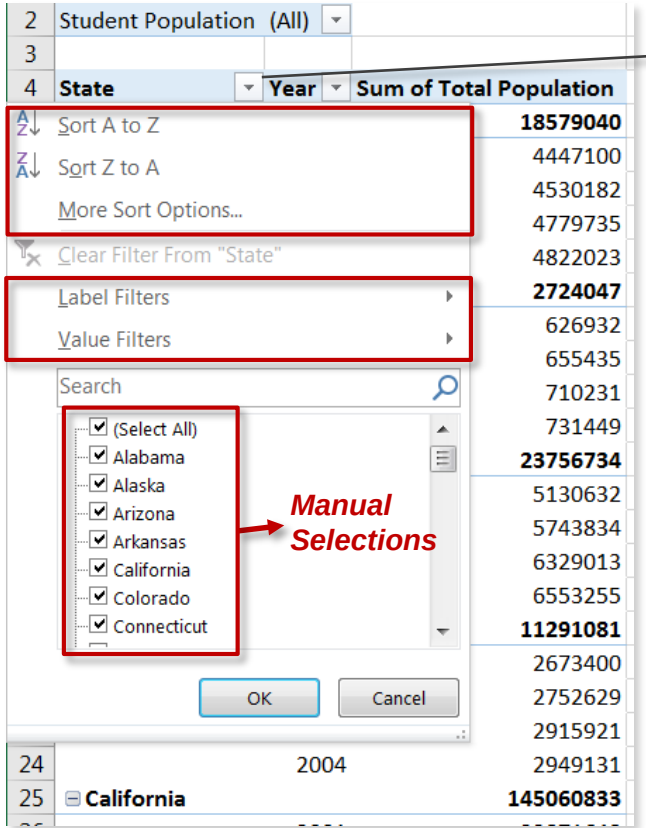
- **Text and Value-based Formats**
- **Data Bars**
- **Color Scales**
- **Icon Sets**
- **Formula-Based Rules**

EXCEL MAVEN

SORTING, FILTERING & GROUPING

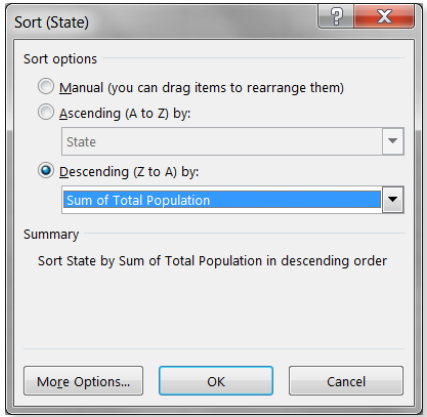
EXCEL MAVEN

SORTING & FILTERING

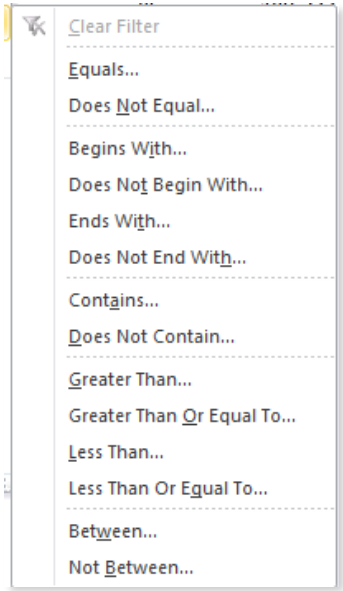


Hit this button (*or right-click one of the values*)
to drill into Sorting & Filtering options

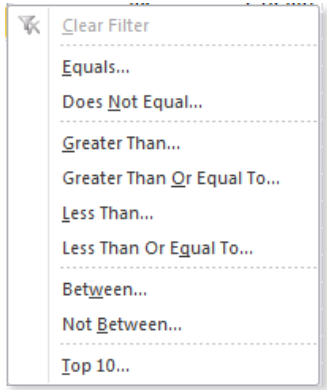
More Sort Options:



Label Filters:



Value Filters:

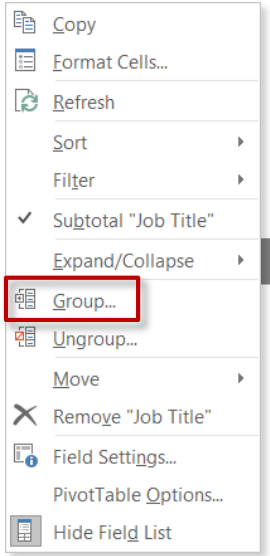


EXCEL MAVEN

GROUPING DATA

	A	B	C
1	Year	2012	
2	Employee Name	(All)	
3			
4	**Job Title**	**Sum of Base Pay**	**Sum of Overtime Pay**
5	Fusion Welder	$187,928	$4,230
6	Forensic Autopsy Technician	$73,899	$530
7	Food Service Worker	$832,014	$236,773
8	Food Service Supervisor	$120,515	$12,307
9	Firefighter	$15,547,896	$3,740,214
10	Fire Safety Inspector Ii	$249,959	$1,854
11	Fire Safety Inspector 2	$523,823	$153,958
12	Fire Protection Engineer	$77,376	$0
13	Fire Fighter Paramedic	$3,275,200	$485,124
14	Fire Alarm Dispatcher	$25,720	$0
15	Fingerprint Technician Ii	$94,278	$6,587
16	Fingerprint Technician 3	$65,894	$998
17	Fingerprint Technician 2	$172,595	$9,040
18	Feasibility Analyst, Port	$89,376	$0
19	Farmer	$61,625	$0
20	Fare Inspections Supervisor/Investigator	$107,439	$0
21	Fare Collections Receiver	$228,800	$46,455

Select values that you'd like to group
(in this case fire-related job titles)



Right-click and select Group

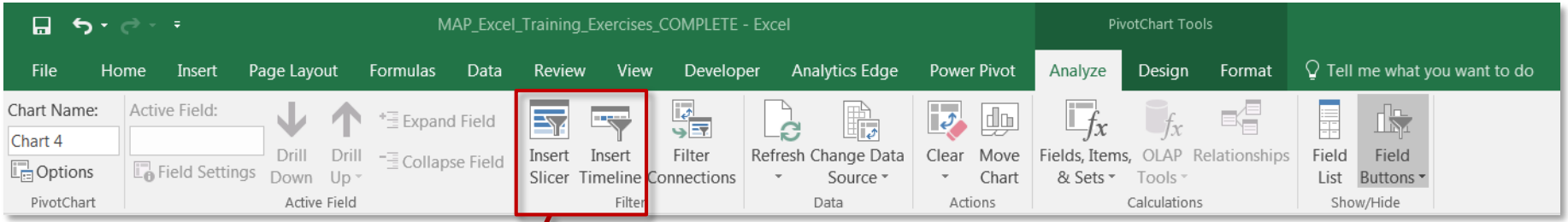
	A	B
1	Year	2012
2	Employee Name	(All)
3		
4	**Job Title2**	**Job Title**
5	**Fusion Welder**	
6		Fusion Welder
7	**Forensic Autopsy Technician**	
8		Forensic Autopsy Technician
9	**Food Service Worker**	
10		Food Service Worker
11	**Food Service Supervisor**	
12		Food Service Supervisor
13	**Group1**	
14		Firefighter
15		Fire Safety Inspector Ii
16		Fire Safety Inspector 2
17		Fire Protection Engineer
18		Fire Fighter Paramedic
19		Fire Alarm Dispatcher
20	**Fingerprint Technician Ii**	
21		Fingerprint Technician Ii

A new field is created ("Job Title2") containing the new group ("Group1")

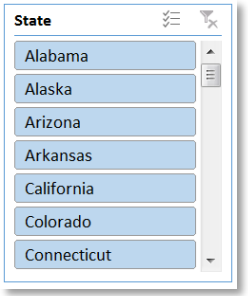
Note: *Both names can be customized*

EXCEL MAVEN

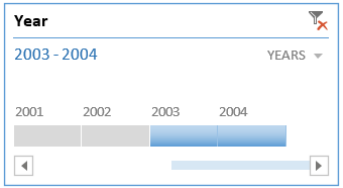
SLICERS & TIMELINES



*Insert **Slicers** or **Timelines***



Basically a prettier version of a filter!



A filter designed specifically for dates

PRO TIP:

Slicers and Timelines work just like regular report filters, but with user-friendly interfaces

EXCEL MAVEN

REPORT FILTER PAGES

	A	B	C	D
1	Year	(All)		
2	Employee Name			
3				
4	**Job Title**		**Sum of Overtime Pay**	**Sum of Other Pay**
5	Account Clerk		$16,160	$26,448
6	Accountant		$0	$0
7	Accountant I		$0	$0
8	Accountant Ii		$0	$31,851
9	Accountant Iii		$0	$9,318
10	Accountant Intern		$0	$6,715
11	Accountant Iv		$0	$29,264
12	Acupuncturist		$0	$1,220
13	Admin Analyst 3		$0	$5,826
14	Admin Hearing Examiner	$223,203	$0	$2,230
15	Administrative Analyst	$4,439,753	$140	$18,873
16	Administrative Analyst I	$5,416	$0	$0
17	Administrative Analyst Ii	$118,747	$0	$4,247
18	Administrative Engineer	$836,305	$0	$9,742
19	Administrative Services Mgr	$183,985	$0	$470

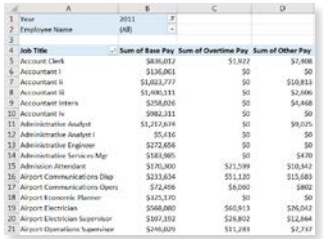
Search
(All)
2011
2012
2013
Select Multiple Items
OK
Cancel

PivotTable Name: PivotTable4
Active Field: Year
Options
Field Settings
Options
Show Report Filter Pages...
Generate GetPivotData

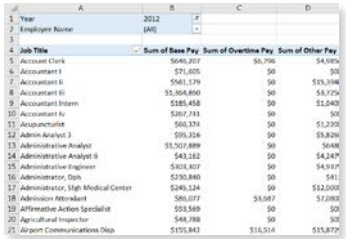
(PivotTable Tools → Analyze)

Show Report Filter Pages
Show all report filter pages of:
Employee Name
Year
OK
Cancel

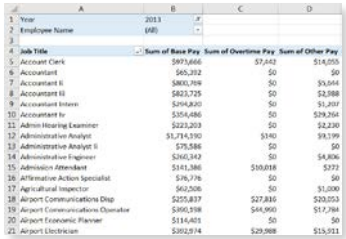
Use the "Show Report Filter Pages" option to create new tabs for each value that a given filter (*i.e. Year*) can take



Year = **2011**



Year = **2012**



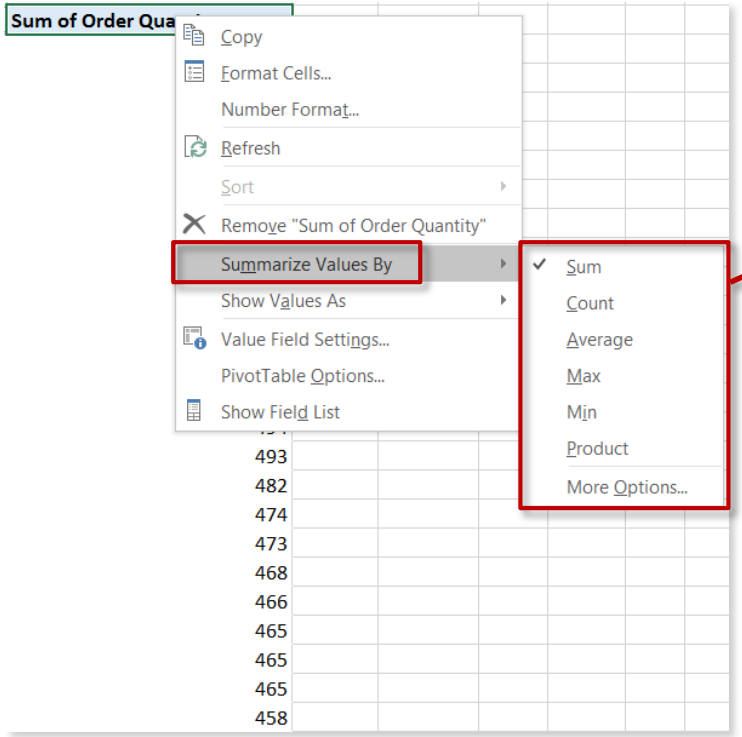
Year = **2013**

EXCEL MAVEN

CALCULATED VALUES & FIELDS

EXCEL MAVEN

SUMMARIZE VALUES BY



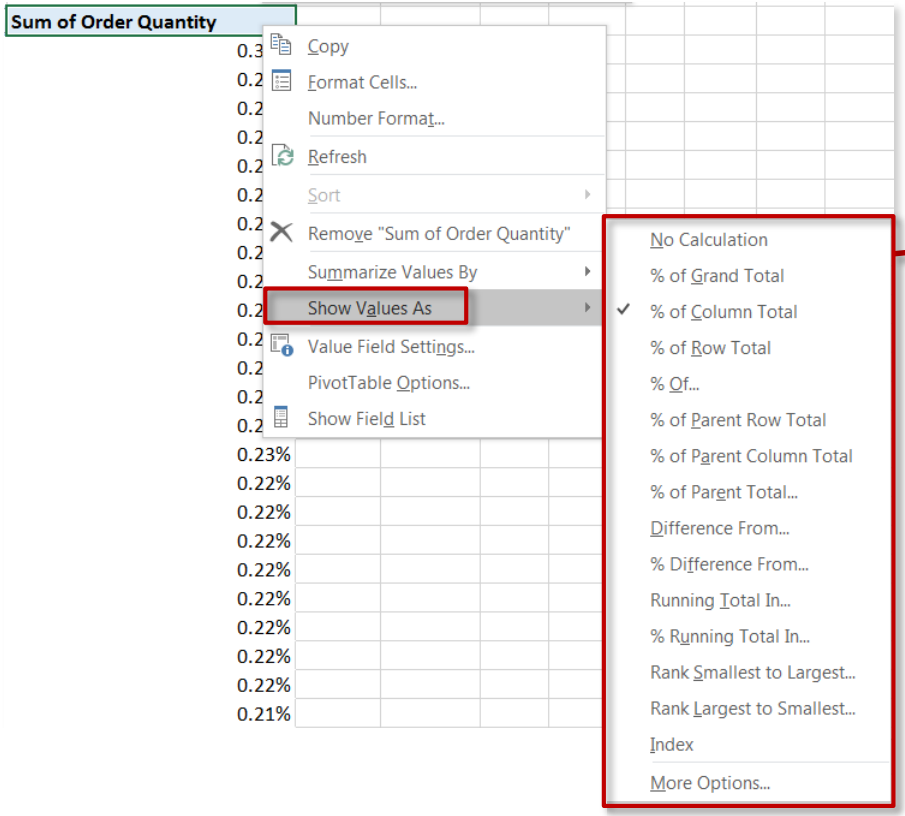
Summarize Values By **determines how numbers should be treated when they are rolled up or aggregated** *(sum, count, average, max, etc.)*

PRO TIP:

Excel will default to "Count Of" if a data column contains blanks or non-numerical values. Typically you will want to change this field setting to "Sum Of"

EXCEL MAVEN

SHOW VALUES AS



Show Values As options allow you to apply additional calculations to change the way values are shown, such as the Percent of a Total or Subtotal, Running Value, Rank, etc.

*In this case, we're showing **Order Quantity** values as **% of Column Total,** rather than whole numbers*

EXCEL MAVEN

SHOW VALUES AS - EXAMPLES

In this example we're summarizing the same Revenue field **6 different ways:**

Genre	Year	Revenue Value *(no calculation)*	Revenue2 % of Total Column	Revenue3 % of Parent *(genre)*	Revenue4 % Difference *(prev. year)*	Revenue5 Running Total *(by year)*	Revenue6 Rank *(Large → Small)*
Action		**$12,521,476,890**	**58.01%**	**100.00%**			
	2010	$2,939,932,519	13.62%	23.48%		$2,939,932,519	4
	2011	$3,326,029,678	15.41%	26.56%	13.13%	$6,265,962,197	1
	2012	$3,181,127,752	14.74%	25.41%	-4.36%	$9,447,089,949	2
	2013	$3,074,386,941	14.24%	24.55%	-3.36%	$12,521,476,890	3
Adventure		**$8,130,146,101**	**37.67%**	**100.00%**			
	2010	$2,194,189,209	10.17%	26.99%		$2,194,189,209	3
	2011	$1,180,009,072	5.47%	14.51%	-46.22%	$3,374,198,281	4
	2012	$2,346,041,792	10.87%	28.86%	98.82%	$5,720,240,073	2
	2013	$2,409,906,028	11.16%	29.64%	2.72%	$8,130,146,101	1
Animation		**$933,080,437**	**4.32%**	**100.00%**			
	2010	$251,501,645	1.17%	26.95%		$251,501,645	2
	2011	$10,134,754	0.05%	1.09%	-95.97%	$261,636,399	4
	2012	$183,600,836	0.85%	19.68%	1711.60%	$445,237,235	3
	2013	$487,843,202	2.26%	52.28%	165.71%	$933,080,437	1
Grand Total		**$21,584,703,428**	**100.00%**				

EXCEL MAVEN

SHOW VALUES AS - INDEX

The Index calculation uses an aggregated weighted average to reveal the impact of one number within the context of a data set

Revenue / Genre	Country / Australia	Canada	France	UK	USA
Action	$843,261,855	$718,355,657	$1,076,178,688	$3,099,974,501	$59,778,470,770
Adventure	$274,765,505	$260,123,835	$73,505,978	$2,823,401,894	$26,748,337,472
Animation	$63,992,328		$11,517,100	$132,206,052	$3,528,074,076
Biography	$40,246,592	$33,855,526	$53,902,093	$950,806,244	$6,288,688,296
Comedy	$77,873,417	$231,856,600	$159,028,092	$980,270,042	$35,675,230,901
Crime	$2,300,604	$1,882,581	$8,478,574	$366,995,069	$7,485,361,502
Documentary		$24,784	$107,581,601	$5,352,503	$435,104,871
Drama	$150,361,951	$103,169,476	$360,552,216	$1,236,661,845	$17,705,898,861
Family					$447,481,433
Fantasy		$123,792,202		$14,564,027	$1,257,990,540
Horror	$49,460,140	$101,747,280	$3,658,281	$195,236,323	$4,729,877,904
Musical					$184,168,000
Mystery	$4,717,455	$489,220	$15,523,168		$1,036,780,660

Documentaries index very high in France, ***meaning that a global increase in Documentary ticket prices would impact the French film industry significantly more than any other country***

Revenue / Genre	Country / Australia	Canada	France	UK	USA
Action	1.54	1.25	1.58	0.87	0.99
Adventure	1.09	0.99	0.23	1.72	0.97
Animation	2.05	0.00	0.30	0.65	1.03
Biography	0.65	0.53	0.70	2.37	0.93
Comedy	0.25	0.71	0.41	0.48	1.05
Crime	0.03	0.03	0.10	0.86	1.04
Documentary	0.00	0.01	18.90	0.18	0.86
Drama	0.92	0.60	1.78	1.16	0.99
Family	0.00	0.00	0.00	0.00	1.09
Fantasy	0.00	10.13	0.00	0.19	0.98
Horror	1.16	2.29	0.07	0.71	1.01
Musical	0.00	0.00	0.00	0.00	1.09
Mystery	0.53	0.05	1.41	0.00	1.07

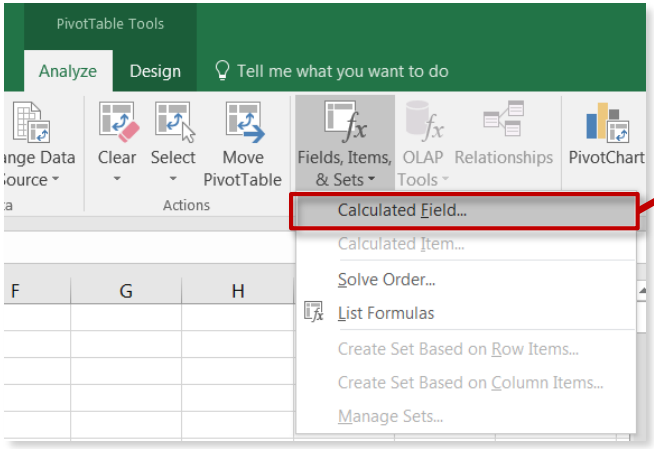
Each Revenue number is converted to an ***Index*** *representing it's importance within each column, using the following formula:*

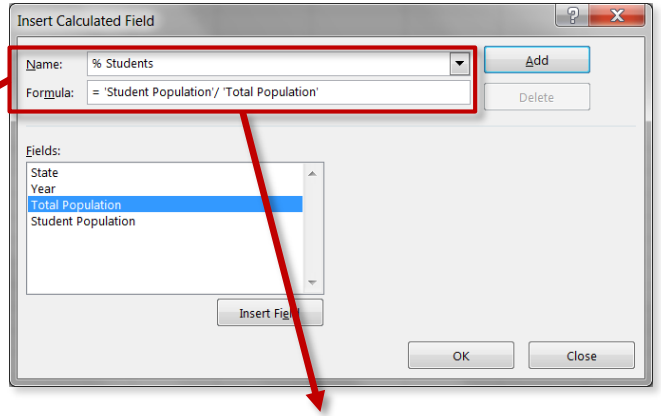
(Cell Value * Grand Total) / (Row Total * Column Total)

EXCEL MAVEN

CALCULATED FIELDS

Calculated Fields allow you to create new measures based on existing, numerical fields:





*In this case I've added a measure called **% Students**, equal to **Student Population / Total Population***

PRO TIP:

Don't calculate rate metrics (i.e. CTR, CPC) in your raw data, use calculated fields in your Pivot. This ensures that they calculate properly no matter how your data is rolled up

EXCEL MAVEN

CALCULATING USING COUNTS

Calculated fields are *always* based on the SUM of other fields (*even if they are shown as a count, max, average, etc.*). But what if you want to make a calculation based on the COUNT of a field?

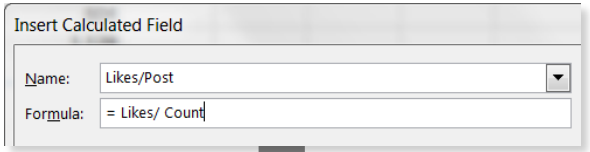
Ex) Create a field to calculate the ***Likes per Post*** on each date

	A	B	C
1	Page	Spartan Race	
2	Post Type	photo	
3			
4	**Date of Post**	**Post Copy**	**Sum of Likes**
5	**10/1/2016**		**2,286**
6		If you missed the #SpartanWC16, you misse	336
7		Tap that bell then celebrate with a refreshin	218
8		The biggest race of the Spartan calendar is h	604
9		Your 2016 #SpartanWC16 top finishers: Zuza	1,128
10	**10/2/2016**		**7,266**
11		"Couldn't wait to get home and put it all tog	534
12		#SpartanRace founder practicing what he pr	1,467
13		Tahoe had one last surprise for us Spartans t	2,000
14		The 26+ mile, 70+ obstacle #SpartanWC16 U	1,743
15		This #SpartanMedal is one for the mantle! P	572
16		Your top finishers at this year's #SpartanWC	663
17		Your top finishers at this year's #SpartanWC	287
18	**10/3/2016**		**12,022**
19		AROO to all the racers, fans and volunteers t	749
20		As the sun sets on another World Champion	1,079
21		Cold, mud, obstacles and snow could not stc	865
22		How many Spartans out there are feeling so	963
23		Start the week off strong, and keep it going a	2,926
24		When Randy Moss,one of the greatest footl	5,440

STEP 1: Create a new "**Count**" column (=1) in the source data

	A	B	C	
1	**Count**	**Page**	**Date of Post**	**Pos**
2	1	Spartan Race	8/30/2016	vi
3	1	Spartan Race	8/30/2016	vi
4	1	Spartan Race	8/30/2016	vi
5	1	Spartan Race	8/30/2016	vi
6	1	Spartan Race	8/30/2016	vi
7	1	Spartan Race	8/31/2016	vi
8	1	Spartan Race	8/31/2016	vi
9	1	Spartan Race	8/31/2016	l
10	1	Spartan Race	8/31/2016	ph
11	1	Spartan Race	8/31/2016	vi
12	1	Spartan Race	8/31/2016	st
13	1	Spartan Race	8/31/2016	st
14	1	Spartan Race	8/31/2016	st
15	1	Spartan Race	8/31/2016	st
16	1	Spartan Race	8/31/2016	st
17	1	Spartan Race	9/1/2016	l
18	1	Spartan Race	9/1/2016	vi
19	1	Spartan Race	9/1/2016	l
20	1	Spartan Race	9/1/2016	vi
21	1	Spartan Race	9/1/2016	vi

STEP 2: Create a calculated field defined as **Likes/Count**

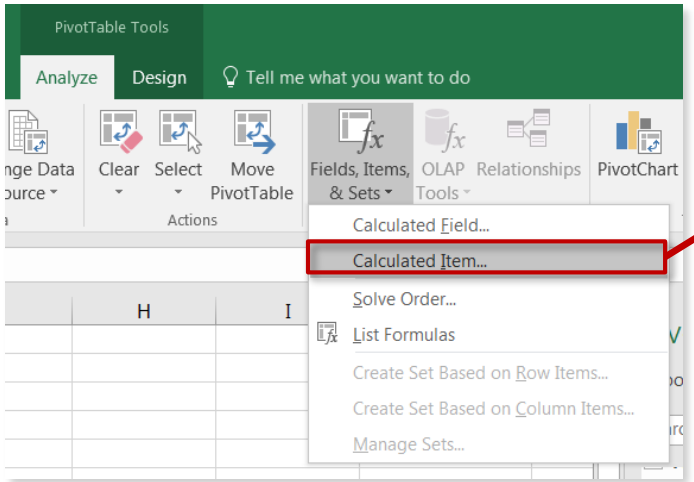


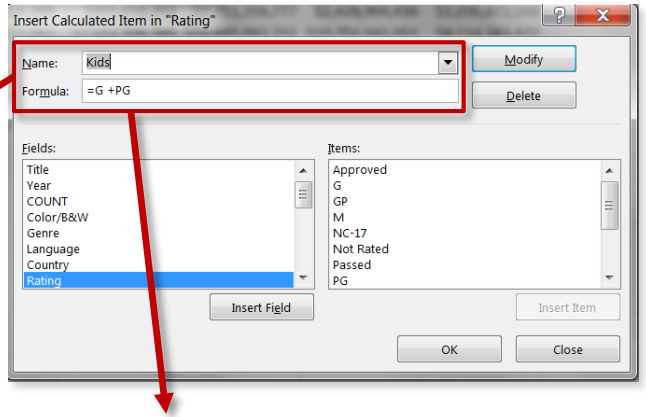
4	**Date of Post**	**Post Copy**	**Sum of Likes**	**Sum of Likes/Post**
5	**10/1/2016**		**2,286**	**572**
6		If you missed the #SpartanWC16,	336	336
7		Tap that bell then celebrate with	218	218
8		The biggest race of the Spartan ca	604	604
9		Your 2016 #SpartanWC16 top fini	1,128	1,128
10	**10/2/2016**		**7,266**	**1,038**
11		"Couldn't wait to get home and pu	534	534
12		#SpartanRace founder practicing	1,467	1,467
13		Tahoe had one last surprise for us	2,000	2,000
14		The 26+ mile, 70+ obstacle #Spart	1,743	1,743
15		This #SpartanMedal is one for the	572	572
16		Your top finishers at this year's #S	663	663
17		Your top finishers at this year's #S	287	287

EXCEL MAVEN

CALCULATED ITEMS

Calculated Items allow you to create new dimensions or categories based on existing dimensions:





*In this case I've added a new category called "**Kids**", which combines **G** and **PG** movie ratings*

PRO TIP:

DON'T USE CALCULATED ITEMS UNLESS YOU NEED TO; you're usually better off simply grouping fields or adding new category columns within your source data itself

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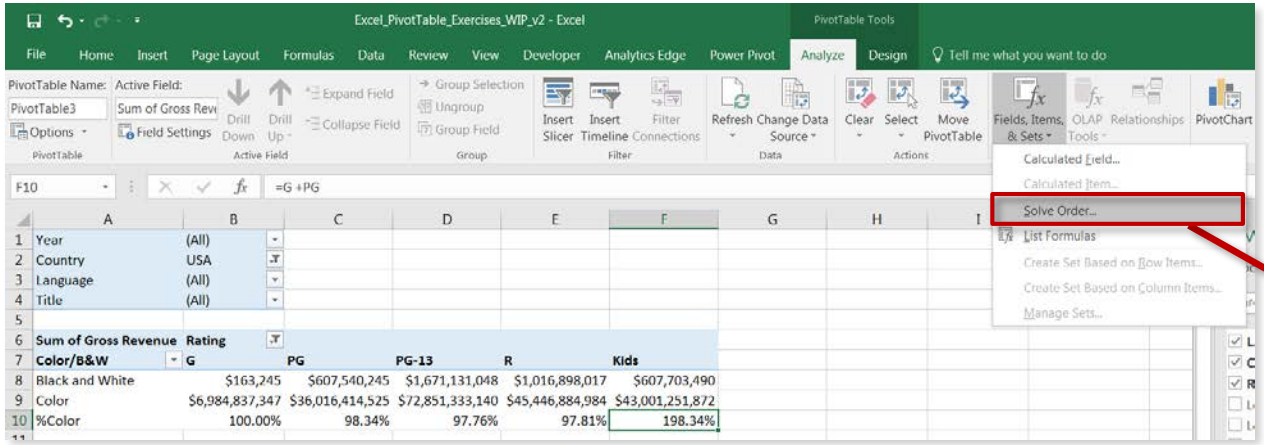
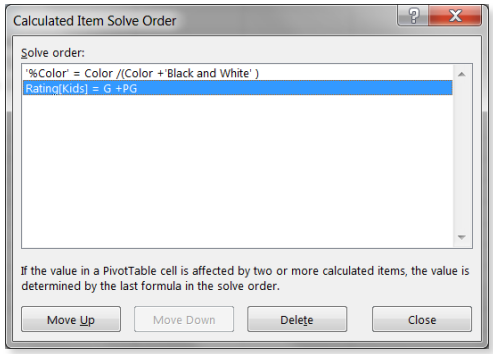
SOLVE ORDER

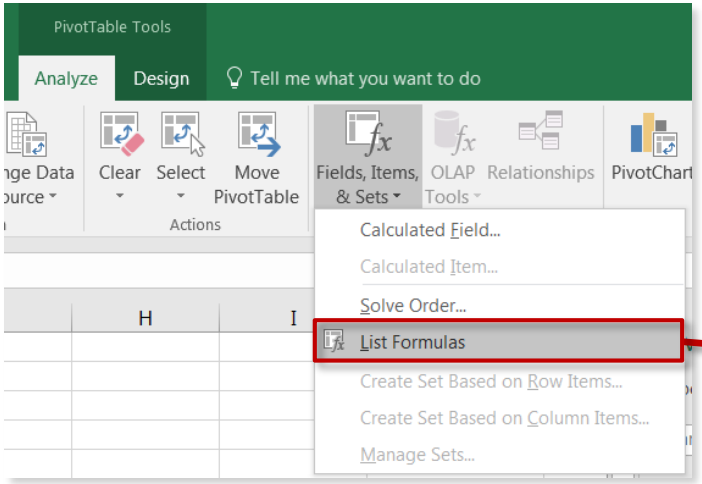



Calculated Item Solve Order
Solve order:
'%Color' = Color /(Color +'Black and White')
Rating[Kids] = G +PG
If the value in a PivotTable cell is affected by two or more calculated items, the value is determined by the last formula in the solve order.
Move Up
Move Down
Delete
Close

If you've defined multiple calculated items, the Solve Order can be used to determine which calculations to prioritize *(value is determined by the last formula in the list)*

EXCEL MAVEN

LIST FORMULAS



	A	B	C	D	E	F
1	***Calculated Field***					
2	**Solve Order**	**Field**	**Formula**			
3	1	Profit	='Gross Revenue' -Budget			
4	2	Weighted IMDB Score	='Raw Score' /'Total Reviews'			
5	3	Lead Actor Like %	='Lead Actor FB Likes' /'Cast Total FB Likes'			
6						
7	***Calculated Item***					
8	**Solve Order**	**Item**	**Formula**			
9	1	'%Color'	=Color /(Color +'Black and White')			
10	2	Rating[Kids]	=G +PG			
11						
12						
13	***Note:***	When a cell is updated by more than one formula,				
14		the value is set by the formula with the last solve order.				
15						
16		To change the solve order for multiple calculated items or fields,				
17		on the Options tab, in the Calculations group, click Fields, Items, & Sets, and then click Solve Order.				
18						

The List Formulas tool produces a new tab summarizing all calculated fields and items associated with a given Pivot, along with the current solve order

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PIVOT CHARTS

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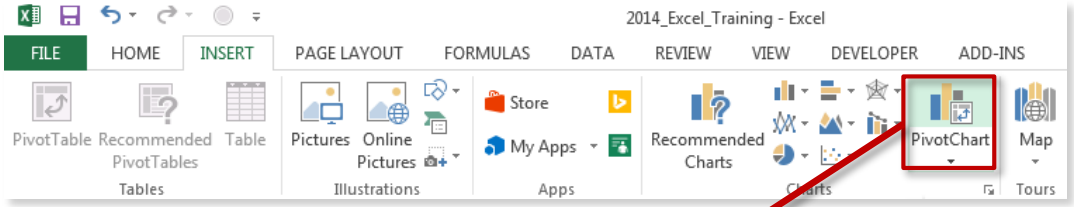
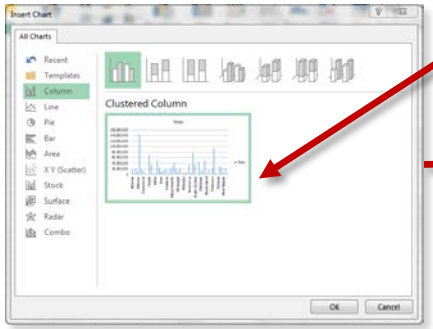
PIVOT CHART 101

A PivotChart is simply a chart that is tied to a specific PivotTable; as you adjust filters and fields in your Pivot, the PivotChart updates dynamically

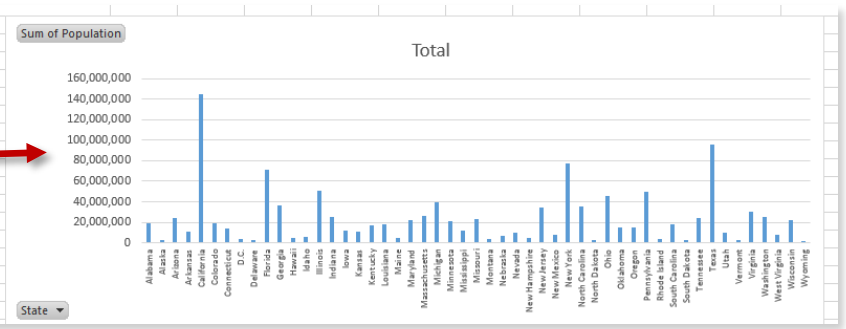


*1) Select your pivot and choose PivotChart from either the "**Insert**" tab or the "**Analyze**" tab*



2) Select a chart type

State	Sum of Population
Alabama	18,579,040
Alaska	2,724,047
Arizona	23,756,734
Arkansas	11,291,081
California	145,060,833
Colorado	19,119,442
Connecticut	14,073,613
D.C.	3,428,990
Delaware	2,359,628
Florida	71,498,418
Georgia	36,623,434
Hawaii	5,226,991
Idaho	5,850,525
Illinois	50,838,814
Indiana	25,339,188
Iowa	12,001,311

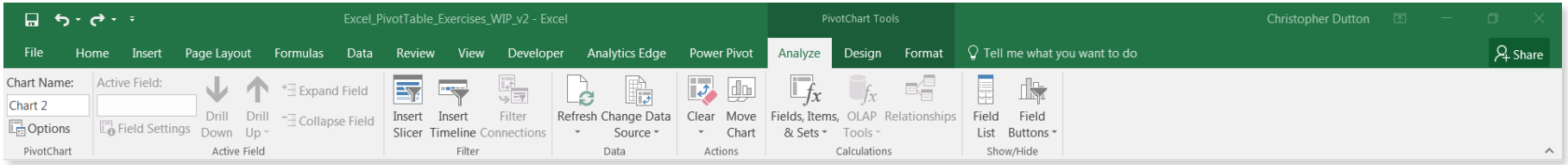


*3) The PivotChart will be inserted, and dynamically tied to the pivot (**note:** you can filter the view using either the pivot table or the chart itself)*

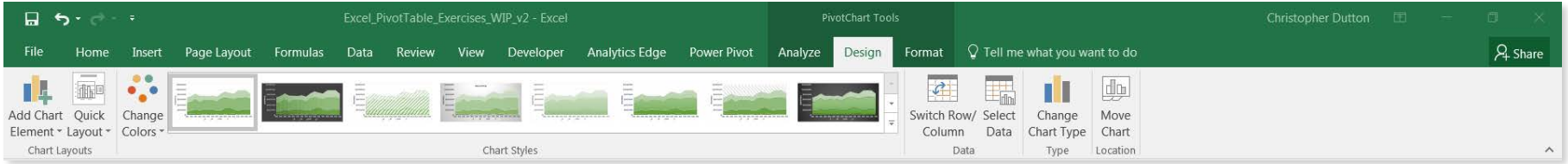
EXCEL MAVEN

PIVOT CHART OPTIONS

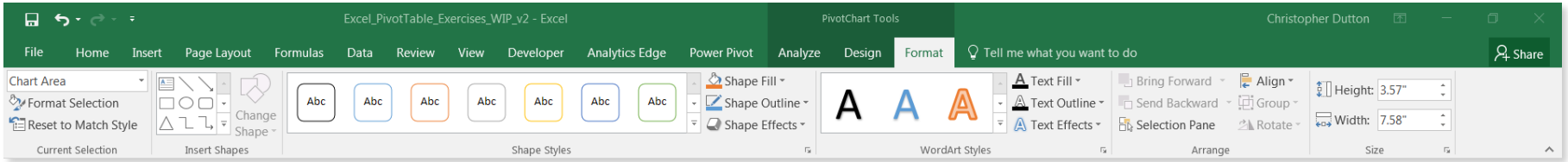
The **“Analyze”** Tab:



The **“Design”** Tab:



The **“Format”** Tab:



EXCEL MAVEN

PIVOT CHART LAYOUTS & STYLES

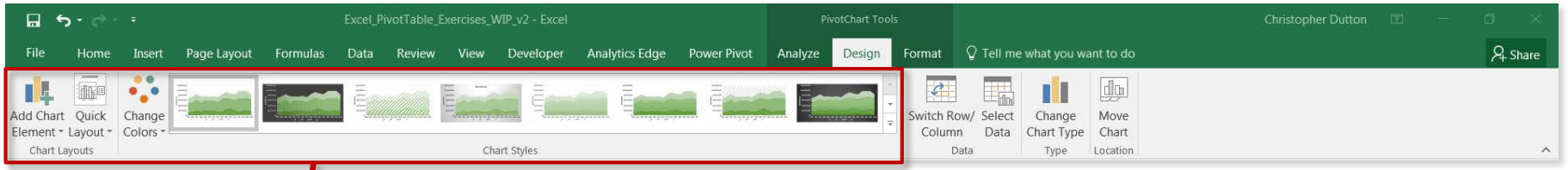
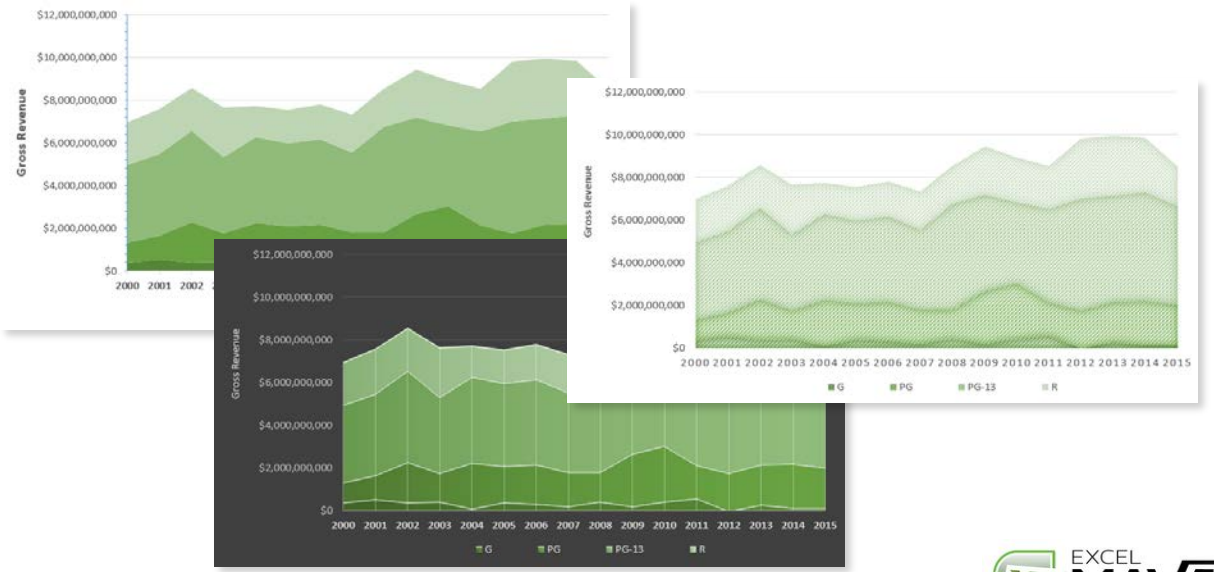
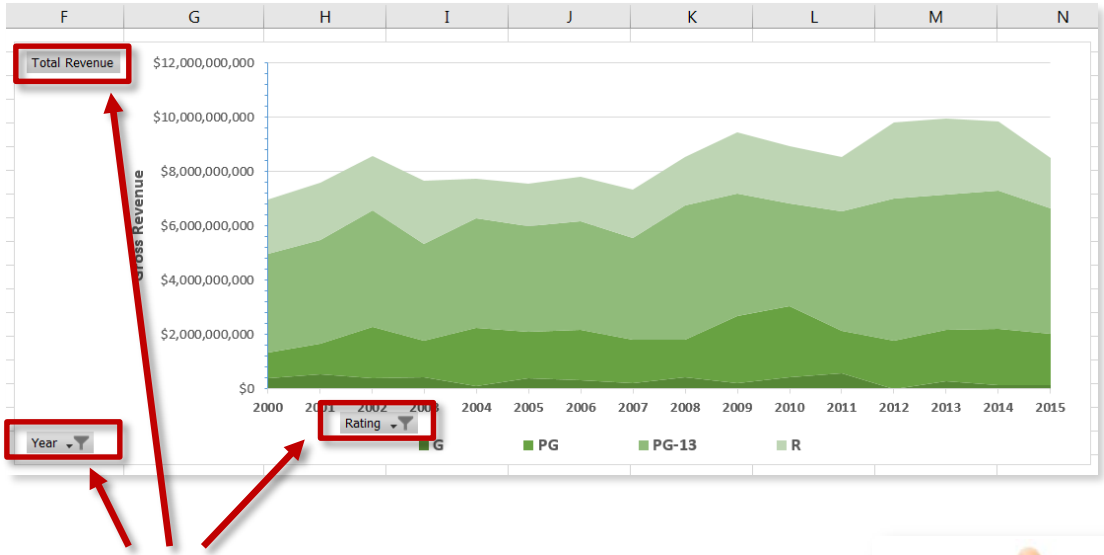


Chart Layouts & Styles allow you to adjust the look and feel of a PivotChart, including adding elements, changing color palettes, or applying pre-set templates

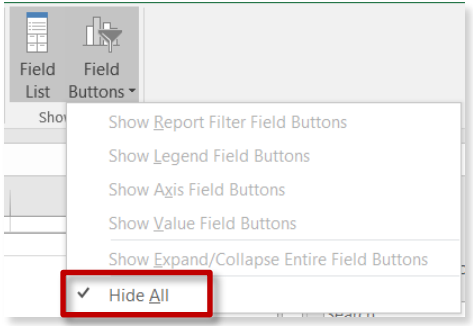


EXCEL MAVEN

PIVOT CHART FIELD BUTTONS



Field Buttons allow you to apply or adjust filters directly within the chart



*Select **PivotChart Tools → Analyze → Field Buttons** to hide them from the chart (or right click one of them from the chart itself)*

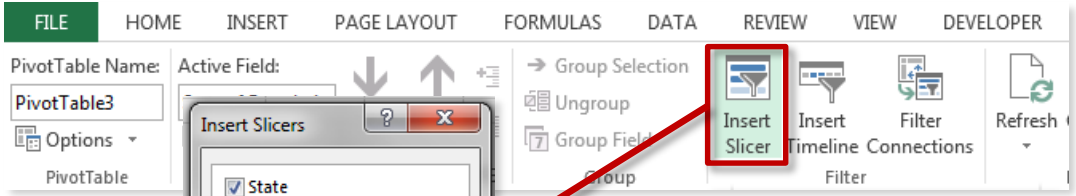
PRO TIP:

You can format PivotCharts exactly like normal Excel charts – the only difference is that PivotCharts are dynamically tied to a PivotTable

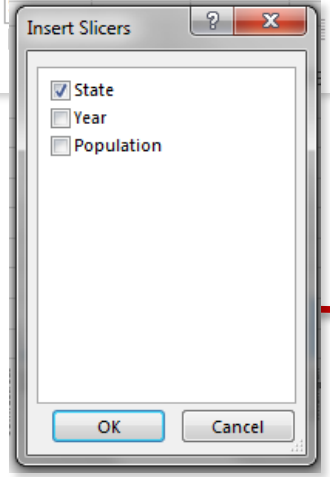
EXCEL MAVEN

ADDING SLICERS

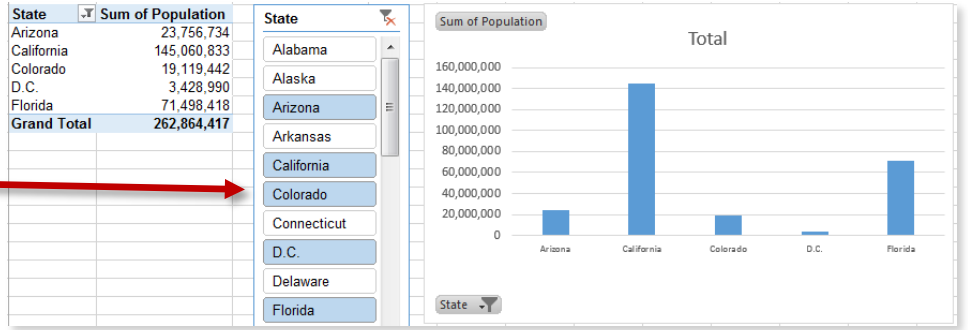
A Slicer is basically a "prettier" version of a PivotTable filter; it works exactly the same way by filtering the data you see in your PivotTable and PivotCharts



1) *Select a PivotTable and choose "**Insert Slicer**" from the "**PivotTable Tools**" tab*



2) *Select the field(s) that you want to filter*

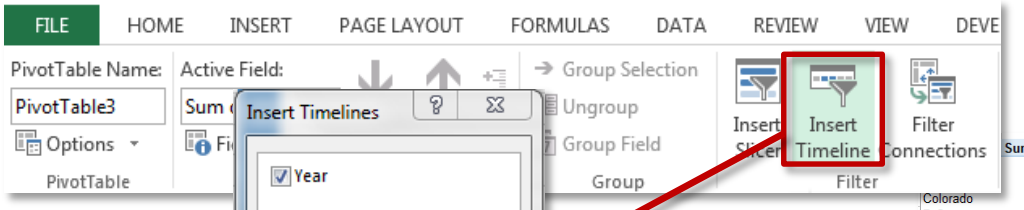


3) *The Slicer will be inserted next to your table, allowing you to filter on specific values (or combinations, using the **CTRL** key)*

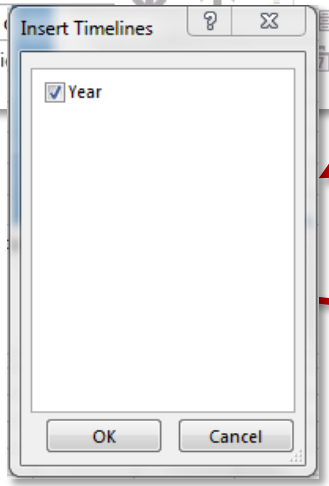
EXCEL MAVEN

ADDING TIMELINES

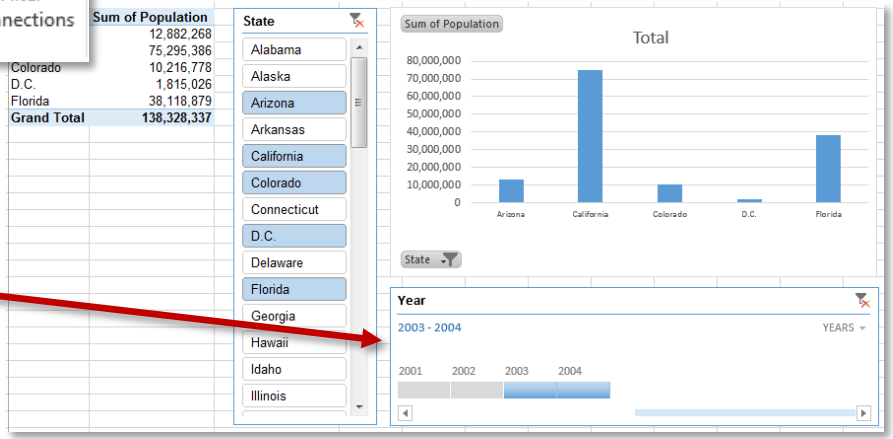
A Timeline works just like a Slicer – it's just formatted to work specifically with Date & Time fields



*1) Select your pivot table and choose "**Insert Timeline**" from the "**PivotTable Tools**" tab*



2) Select the date/time field(s) that you want to filter



*3) The Timeline is inserted, allowing you to filter on specific time frames (**Note:** may need to adjust unit of time (month, year, etc.))*

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